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# USSR Report

AGRICULTURE

No. 1276



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## CONTENTS

## LIVESTOCK FEED

Feed is Key Ingredient in Successful Livestock Overwintering (MYASNAYA INDUSTRIYA SSSR, Feb 81).....	1
Sovkhoz Livestock Workers Scoring Labor Successes (I. I. Fedorus, A. K. Bakanov; MYASNAYA INDUSTRIYA SSSR, Feb 81).....	4

## LIVESTOCK

Conference on Organization of Production Line System for Pork Production (SOVETSKAYA ESTONIYA, 11 Mar 81).....	6
Plans for Intensification of Swine Raising Operations in Estonian SSR (SOVETSKAYA ESTONIYA, 14 Mar 81).....	8

## AGRO-ECONOMICS AND ORGANIZATION

Belorussian Agriculture Minister Discusses Private Plots (F. P. Sen'ko Interview; SOVETSKAYA BELORUSSIYA, 20 Mar 81)....	11
Use of Private Plots Promoted in Kazakhstan (KAZAKHSTANSKAYA PRAVDA, 11 Mar 81).....	19

## TILLING AND CROPPING TECHNOLOGY

Requirement for Improvements in Belorussian Agrochemical Service Stressed (G. G. Kovalenko; KHIMIYA V SEL'SKOM KHOZYAYSTVE, Feb 81).....	21
Advantages of Industrial Technology for Sunflower Cultivation Stressed (D. Vasil'yev, A. Lukashev; SEL'SKAYA ZHIZN', 17 Mar 81).....	31

## LIVESTOCK FEED

### FEED IS KEY INGREDIENT IN SUCCESSFUL LIVESTOCK OVERWINTERING

Moscow MYASNAYA INDUSTRIYA SSSR in Russian No 2, Feb 81 pp 1-2

[Lead article: "Carry out the Overwintering of Livestock in an Organized Fashion"]

[Text] In response to the decree of the CPSU Central Committee, USSR Council of Ministers, AUCCTU, and Central Committee of the Komsomol entitled "All-Union Socialist Competition Among Animal Husbandry Workers for Successful Overwintering of Livestock and Increasing the Production and State Purchase of Animal Husbandry Products in 1980-81 Winter Period," the livestock feeding sovkhozes and procurement organizations of the USSR Ministry of Meat and Dairy Industry have stepped up organizational and mass political work to develop socialist competition on a broad scale in the collectives of the sovkhozes, divisions, livestock brigades, and livestock units to raise the efficiency of agricultural production and increase the production and sale to the state of animal husbandry output.

The 1979-1980 livestock overwintering season showed that a large number of collectives of sovkhozes, divisions, livestock units, brigades, and leading workers of animal husbandry achieved good results in fulfilling and over-fulfilling plans and socialist obligations for the production and sale to the state of animal husbandry output. The collectives of the Temp and Bagachanskiy sovkhozes of the Ukrainian SSR Ministry of Meat and Dairy Industry and the livestock feeding sovkhoz of the Orenburg Meat Industry Production Association were awarded certificates of honor from the CPSU Central Committee, USSR Council of Ministers, AUCCTU, and Komsomol Central Committee with monetary bonuses. Honorary certificates of the USSR Ministry of Meat and Dairy Industry and the Central Committee of the Trade Union of Food Industry Workers were awarded to 27 leading livestock units, brigades, and divisions, and 147 outstanding individual livestock workers in the ministry system.

The period of livestock overwintering is a difficult and important time in the work of farms when the animals must be switched to winter rations in the face of climatic and other changes. Many livestock sovkhozes, using the advances of science and progressive experience, have obligated themselves to increase the production and sale to the state of animal husbandry output during this period. Conditions for good livestock overwintering in 1980-1981

were created in advance. Thus, even with poor weather conditions in the feed preparation and harvest periods of 1980, the following increases in feed were achieved compared to 1979: feed - 2.4 percent; grain - 2 percent; haylage - 44%; hay - 11%; straw - 7%; silage - 12%.

All the farms have repaired livestock quarters and prepared feed shops, boiler rooms, transformer plants, and other installations for uninterrupted work under winter conditions. A significant number of sovkhoses in the Kiev, Dnepropetrovsk, Chernigov, and several other meat industry production associations of the Ukrainian SSR, the Moscow Meat Industry Production Association of the RSFSR, and the livestock feeding sovkhoses of the Azerbaijan SSR completed this work by September.

All the farms of the ministry have carried out a program of preventive veterinary steps to prevent livestock illness during the winter period.

The work of the livestock sovkhoses of the Voroshilovgrad Meat Industry Production Association of the Ukrainian SSSR Ministry of Meat and Dairy Industry deserves praise. The farms of this association repaired livestock quarters and feed shops ahead of time, hauled feed to the livestock wintering points, and assigned permanent skilled personnel to the livestock units. All feed fed to the animals is in prepared form and diets are balanced in terms of the key nutrients: protein, vitamins, and minerals. Nitrogen compounds (carbamide), conifer and grass meal, and synthetic vitamins are used to make up the protein and vitamin deficiency in the rations. All this is enabling the sovkhoses of the association to increase the productivity of the animals during the winter of 1980-1981 and raise meat production.

The collective of the Novopetrovskiy Livestock Sovkhoz has increased meat production 26 percent over the same period of 1979-1980. Their average daily weight gain reached 685 grams for cattle and 556 grams for hogs, which was 22 and 39 grams more than last year respectively.

Production and sale to the state of animal husbandry output has also increased at the Vrubovskchik, Shchorskiy, and other livestock sovkhoses.

In 1980 the Voroshilovgrad Meat Industry Production Association as a whole increased sale of meat to the state by 119 percent. They turned over 527 tons more of meat than in the corresponding period of last year. The average daily weight gain for hogs was 550 grams, 32 grams more than last year, while for cattle it was 690 grams, 117 grams more than the corresponding period of the preceding year. They used 6.1 quintals of feed per quintal of weight gain in hogs compared to a plan figure of 6.5, while for cattle the corresponding figures were 9.1 actual use and a plan of 9.5 quintals of feed units.

The collectives of the Krasnyy Put' and Pavlovskiy sovkhoses of the Moscow Meat Industry Production Association did very well. On 1 January 1981 the livestock herd at the Krasnyy Put' had increased 18 head over the corresponding period of the preceding year and the Pavlovskiy Sovkhoz had increased its herd 20 head. Meat production at the Krasnyy Put' sovkhos rose 25 percent, while at the Pavlovskiy sovkhos the increase was six percent.



The sovkhozes of the Kiev, Chernigov, Dnepropetrovsk, Crimean, and other meat industry associations of the Ukrainian SSR, the farms of the Azerbaijan Ministry of Meat and Dairy Industry, the Altynovo Production Experimental Sovkhoz of the Uglich Science-Production Association, and others are conducting the livestock overwintering in an organized fashion.

Preparation of feed for feeding is very important in raising livestock productivity. It has been demonstrated that animals digest correctly prepared feed better.

The farms of the USSR Ministry of Meat and Dairy Industry have 257 feed shops and feed preparation installations that are capable of providing prepared feed for all livestock being fattened. Therefore, it is the duty of each farm manager to see that the feed shops work smoothly throughout the entire wintering period.

Waste products from meat, dairy, and food industry are a significant feed reserve. The farms of the Kiev, Khar'kov, Odessa, Poltava, and other meat industry production associations of the Ukrainian SSR have accumulated experience with using them. These associations use more than 50,000 tons of waste products to feed animals during the overwintering period, and for the ministry as a whole more than 290,000 tons will be used. This will make it possible to receive roughly 9,000 additional tons of meat.

Straw from grain crops plays a large part in the feed balance. Each year the sovkhozes of the ministry prepare and use more than 100,000 tons of straw for feed. The livestock fattening sovkhozes make broad use of various methods of processing the straw to make it more digestible to the animals. Many farms use the simplest method, treating the straw with NaOH by the dry method. The farms of the Voroshilovgrad, Kiev, Dnepropetrovsk, and other associations use straw in the preparation of multicomponent feed mixtures (including silage and root crops), concentrated feeds, and mineral and vitamin supplements. But the farms of the Rovno, Ivano-Frankovsk, and various other meat industry associations are still not using straw efficiently. They feed it to the livestock without preliminary treatment.

The first months of the livestock overwintering period have demonstrated that the collectives of the livestock farms are taking all necessary steps to increase the production and sale to the state of animal husbandry output.

During the current year the average daily weight gain for feeder hogs for the USSR Ministry of Meat and Dairy Industry as a whole has been 525 grams, while for cattle it has been 660 grams. These figures are 20 and 30 grams above the plan.

The livestock workers of the livestock fattening sovkhozes of the USSR Ministry of Meat and Dairy Industry are working with great enthusiasm during the winter period. Socialist competition has developed at all collectives to celebrate the 26th CPSU Congress in a worthy fashion, successfully conduct the livestock overwintering of 1980-1981, and increase the production and sale to the state of animal husbandry products.

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## LIVESTOCK FEED

### SOVKHOZ LIVESTOCK WORKERS SCORING LABOR SUCCESSES

Moscow MYASNAYA INDUSTRIYA SSSR in Russian No 2, Feb 81 pp 3-4

[Article by I. I. Fedorus and A. K. Bakanov, USSR Ministry of Meat and Dairy Industry: "The Livestock Workers of the Sector Are on Labor Watch"]

[Excerpts] The workers of the livestock fattening sovkhozes of the USSR Ministry of Meat and Dairy Industry greeted the decision of the June 1980 Plenum of the CPSU Central Committee to convoke the 26th Congress of the CPSU with great enthusiasm.

Socialist competition has taken on broad scope under the slogan "A Successful Finish to the Five-Year Plan, and a Worthy Greeting to the 26th CPSU Congress!" The collectives of the livestock sovkhozes, striving to greet the 26th party congress in a worthy fashion, have taken on stepped-up socialist obligations which concentrate attention on increasing the production of animal husbandry output and raising the efficiency and quality of work.

The collectives of the sovkhozes achieved great labor successes during the anniversary watch in honor of the 110th anniversary of the birth of V. I. Lenin. More than 50 leading sovkhozes of the ministries of meat and dairy industry of the RSFSR and Ukrainian SSR as well as the Uglich Science-Production Association fulfilled the assignments of the five-year plan and socialist obligations for production and sale to the state of meat and milk ahead of schedule.

Having taken up the shock labor campaign, animal husbandry workers are seeking additional reserves to increase the productivity of the animals. Waste products from meat, dairy, and food industry and protein substitutes are being used extensively to feed the livestock. During the 1980-1981 livestock overwintering period alone the livestock sovkhozes of the ministry will use more than 290,000 tons of waste from meat, dairy, and food industry for livestock feed. The feed rations of the livestock are balanced in terms of basic nutrients and nutritional elements: protein, carbohydrates, vitamins, and minerals. The farms have 257 feed shops and feed preparation installation.

These and other measures will make it possible to raise the productivity of the livestock and increase the efficiency of the feeding out process.

During the current year the average daily weight gain of hogs at feeding operations has been 523 grams, 20 grams higher than planned. The corresponding gain for cattle is 30 grams above the plan.

The collectives of the sovkhoses of the Kiev, Chernigov, Zaporozh'ye, Crimean, Kherson, and other meat industry production associations of the Ukrainian SSR, the Moscow and Orenburg meat industry production associations of the RSFSR, and the production-experimental poultry factory of the Kompleks Science-Production Association are doing a great deal of organizational work to use feed efficiently and rationally.

It is the duty of the working people of the livestock sovkhoses of the USSR Ministry of Meat and Dairy Industry system to make the maximum effort to carry out the livestock overwintering in the 1980-1981 period in an organized fashion, increase the production and sale to the state of meat and other agricultural output, and greet the 26th Congress of the CPSU in a worthy fashion, with new labor successes.

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## LIVESTOCK

### CONFERENCE ON ORGANIZATION OF PRODUCTION LINE SYSTEM FOR PORK PRODUCTION

Tallinn SOVETSKAYA ESTONIYA in Russian 11 Mar 61 p 1

[Article: "Pork Production -- on a Production Line"]

[Text] An all-union conference on the organization of a production line system for pork production opened in Tallinn on 10 March.

Leading workers of the ministries of agriculture for the union ministries and oblast, kray and rayon agricultural organizations, the leading specialists of a number of kolkhozes, sovkhoses and interenterprise associations and the representatives of scientific institutes are all participating in the work of this conference, organized by the ministries of agriculture for the USSR and the Estonian SSR. The opening address was delivered by A.P. Ryuytel', a member of the Bureau of the Central Committee of the Communist Party of Estonia and 1st Deputy Chairman of the Council of Ministers for the Estonian SSR.

"During the 26th Congress of our party" he stated, "Comrade L.I. Brezhnev declared animal husbandry to be a very important sector of work. This pronouncement by Leonid Il'ich was of extreme importance for agricultural workers in our republic, since animal husbandry is our chief branch of agricultural production."

Subsequently, Comrade Ryuytel' went on to discuss certain problems concerned with the development of swine raising in the republic. At the present time, a production line system for the production of pork is being employed on a majority of our farms and the best farms in the republic are those having a complete production cycle and a capability for producing 400-800 tons of pork annually. At such complexes, an industrial technology is being employed and fine conditions have been created for achieving worker specialization on the farms. Through the modernization of existing buildings and the construction of new pigsties, pork production in the republic increased considerably: during the Tenth Five-Year Plan, the average annual production of pork was greater by 31.5 percent than that for the Ninth Five-Year Plan.

The Deputy Minister of Agriculture for the USSR, L.N. Kuznetsov, delivered a report entitled "Tasks of Developing Animal Husbandry in Light of the Decisions Handed Down During the 26th CPSU Congress."

"The operational experience of kolkhozes and sovkhoses in the Estonian SSR in organizing a production line system for pork production," such was the theme of a report delivered by the republic's Deputy Minister of Agriculture, Yu.K. Kul'bin.

More than 10 reports dealing with vital aspects of swine raising operations were delivered on the first day of the conference.

The following individuals participated in the work of the conference: a Secretary of the Central Committee of the Communist Party of Estonia A.B.I. Upsi, the head of the Agricultural Department of the Central Committee of the Communist Party of Estonia I. Kh. Kallas, a responsible worker attached to the CC CPSU I.N. Yefremov and the deputy head of the Department of Administrative Affairs of the USSR Council of Ministers I.S. Yefremov.

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CSO: 1824/168

## LIVESTOCK

### PLANS FOR INTENSIFICATION OF SWINE RAISING OPERATIONS IN ESTONIAN SSR

Tallinn SOVETSKAYA ESTONIYA in Russian 14 Mar 81 p 3

[Article: "Swine Raising: Experience, Reserves"]

[Text] The vital problems concerned with swine raising operations were discussed during an all-union conference on the subject "Organization of a Production Line System for the Production of Pork," held in Tallinn from 10 to 12 March this year. Those who participated in the conference also visited several farms in our republic where they became acquainted with the operational experience of specialists in this branch.

"As a result of the consistent implementation of the party's agrarian policies" stated the Deputy Minister of Agriculture for the USSR L. Kuznetsov, "agricultural production is becoming more industrial in nature and its potential for satisfying more completely the nation's requirements for food products is increasing. During the 26th CPSU Congress, specific tasks were outlined for increasing agricultural output -- this increase per capita must be greater by a factor of two than the figure for the preceeding five-year plan.

The small and separate pigsties in swine raising are being replaced by large-scale enterprises of the industrial type. As a result, improvements are being realized in labor productivity and in the technical equipping and economic effectiveness of swine raising operations. At the present time, there are more than 500 state, inter-enterprise and kolхоз swine raising complexes in the country and they are producing 25 percent of the overall volume of pork.

The intensification of the branch will be carried out in conformity with the Basic Directions for the Economic and Social Development of the USSR During the 1981-1985 Period and for the Period Up To 1990. The need for utilizing capital investments mainly for the modernization and expansion of animal husbandry facilities is emphasized in these trends. This method is making it possible, with minimal expenditures and on a more rapid basis, to convert swine raising operations over to an industrial basis and to raise the effectiveness of use of existing capabilities.

"At the present time, at the commencement of this new five-year plan" emphasized Comrade Kuznetsov, "importance is attached to planning and organizing the work in a manner such that maximum use is made of the available production potential, the experience of leading workers and scientific achievements.

Fine experience has been accumulated on farms in Estonia in the introduction of the production line system for pork: the concentration of swine raising operations and constant and stable growth in the production of products here have been achieved mainly as a result of the modernization and expansion of old pigsties. This made it possible to increase the average annual production of pork during the Tenth Five-Year Plan to 103,700 tons, compared to only 78,800 tons during the Ninth Five-Year Plan.

"As a result of the expansion and intensification of swine raising operations" commented the Deputy Minister of Agriculture for the Estonian SSR Yu. Kul'bin, "the number of animals increased by almost twofold during the past 10 years. Compared to 1970, when 94.4 quintals of pork were obtained from every 100 hectares of arable land, last year -- 125.5 quintals. During 1980, 274 of our kolkhozes and sovkhozes, or 91 percent of their overall number, participated in the breeding of swine."

It is known that the republic's farms display a preference for facilities having a complete production cycle and a production capability of 400-500 tons of pork annually. At such complexes, the isolated maintenance of the various productive and age groups of swine can be better organized, optimum feeding and maintenance conditions can be created for the animals and the complete mechanization of labor-consuming processes can be introduced into operations. When introducing the production line system for the production of pork and when expanding the farms, extensive use is made of swine feeding and maintenance methods developed by scientists at the Estonian Scientific Research Institute of Animal Husbandry and Veterinary Science -- feeding the herd viscous feeds, the use of circular automatic feeders and so forth.

It is difficult to exaggerate the value of modernizing obsolete farms: during the Tenth Five-Year Plan, the cost for one swine billet in connection with the construction of new farms amounted to 271.6 rubles and in the case of modernization of old facilities -- almost five and a half times less.

The maintenance of swine in uniform groups and a single technological process for each sector made it possible to raise considerably the labor productivity of farm workers. Labor specialization, rhythmic operations, a fine microclimate and the creation of modern domestic facilities on the farms served to lower personnel turnover and at the same time it reduced the shortage of workers. The advantage of complex farms lies in the fact that, in addition to the grain, potatoes, fodder, grass meal and so forth produced on the farms, the waste products of the food and fish industry are also processed for the animals in feed preparation shops.

At the Sovkhoz imeni V. Sassi in Pylvaskiy Rayon, for example, a small swine raising complex was formed based upon modernized pigsties and new farms. And the result: compared to 1976 when the farm sold 416 tons of pork to the state, last year -- more than 700 tons, or 75 percent more. And the average daily weight increase for swine undergoing fattening increased from 368 grams to 500 grams. Pork production increased considerably at the Tyrva Sovkhoz in Valgaskiy Rayon. Compared to 1972, when the sovkhoz produced 338 tons of pork, in 1979, following modernization of the farm, 460 tons were produced and in 1980 -- more than 500 tons of pork. Labor productivity increased by more than 25 percent and the production cost of the pork decreased. Successful work was also performed by the breeding farms (with production line

systems) of the Kayu and Yarvakandi kolkhozes in Raplaakiy Rayon and many other farms.

Based upon the experience accumulated in the Estonian SSR, the USSR Ministry of Agriculture has developed recommendations for organizing a production line system for the production of pork at kolkhozes and sovkhozes throughout the country.

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BELORUSSIAN AGRICULTURE MINISTER DISCUSSES PRIVATE PLOTS

Minsk SOVETSKAYA BELORUSSIYA in Russian 20 Mar 81 pp 2-3

[Interview with Belorussian SSR Minister of Agriculture F. P. Sen'ko by I. Sere-  
dich: "Peasant Farm"]

[Text] As noted in the accountability report of the CPSU Central Committee to the 26th party congress, kolkhozes and sovkhoses were and remain the basis for socialist agriculture. However, this does not at all mean that the possibilities of private subsidiary plots can be disregarded. Experience indicates that such plots can be a great help in the production of meat, milk, eggs and some other products. Statistical data and numerous comments received by the editors on the article "No Matter Whose Cow Moos..." which discussed the attitude to the peasant farm on the part of some kolkhoz and sovkhos managers and rural soviets, also convince us of the above. Readers raised a number of urgent, new problems concerning this important matter. Many comments were published, but, naturally, the editors were unable to publish all the letters.

We acquainted Belorussian SSR Minister of Agriculture F. P. Sen'ko with the editorial mail and asked him to answer a number of questions resulting from readers' letters.

[Question] Fedor Petrovich, in the opinion of many readers, in our republic there is every possibility for a successful development of both public farms and private plots. At the same time, as L. Bogdanovich from Osipovichskiy Rayon and others think, the main reason for the unsolved problems lies in the underestimate of private plots of rural residents by some kolkhoz and sovkhos managers.

[Answer] Well, the conclusion is perhaps correct. The following calculations indicate that we have every possibility for the development of both public farms and private plots. Last year all the categories of farms in the republic had 70 head of large-horned cattle, including 28 cows, per 100 hectares of agricultural land. There were a little more than 73 head of hogs per unit of arable land. This is seemingly not inconsiderable. But let us see how much livestock output we obtained on the same 100 hectares of agricultural land. We obtained 639 quintals of milk and 134.1 quintals of meat (in live weight) per hectare. These indicators



cannot gladden us. In order that they may be better, it is necessary to develop both public farms and private plots in every possible way. At the same time, special attention should be given to the qualitative aspect of the problem. It cannot be considered normal that the average annual milk yield per cow on all the categories of farms in our republic is only 2,234 kg. The daily weight gain of fattening large-horned cattle is also extremely low. It was only 545 grams on kolkhozes and state farms last year. Hogs gained only 356 grams in 24 hours.

With an intensive utilization of land and a high level of animal husbandry management we are able to greatly increase the production of food products both on public farms and on those belonging to kolkhoz members, sovkhoz workers and rural residents of other categories. Many examples of a skillful combination of the development of public animal husbandry and private subsidiary farms can be mentioned. I often had occasion to visit the Zarya Kommunizma Kolkhoz in Ivanovskiy Rayon. This advanced farm has 133 head of large-horned cattle, including almost 40 cows, per 100 hectares of agricultural land. Last year its production of milk on the indicated area of land was 1,146.2 quintals and of meat, more than 270 quintals.

Despite the establishment of large public sections, on this kolkhoz every able-bodied family has livestock on its private plot. The same can be said about the Chyrvonaya Zmena Kolkhoz, the Kolkhoz imeni Gorbachev in Lyubanskiy Rayon and the Leninskiy Put' Kolkhoz in Slutskiy Rayon, where, with a high density of public livestock and its good productivity, great concern for the development of individual plots of kolkhoz members is manifested.

The decree "On Additional Measures To Increase the Production of Agricultural Products on Private Subsidiary Plots of Citizens" recently adopted by the CPSU Central Committee and the USSR Council of Ministers urges us to follow this example. I would like to stress that this document sharply criticizes the party, Soviet and economic bodies that underestimate the role of private plots of kolkhoz members, workers and employees in the replenishment of the country's food resources. It considers it necessary to implement additional measures to improve the conditions of management of subsidiary plots by residents of villages and settlements and to increase the interest of kolkhozes, sovkhozes and other agricultural enterprises, as well as organizations of consumer cooperatives, in a fuller utilization of the possibilities of citizens' plots for the purpose of augmenting the production and sale of crop and livestock products. It was decided to credit the livestock, poultry and milk surplus purchased on private plots to the volume of production and fulfillment of the state plan for the purchases of agricultural products of kolkhozes and sovkhozes with a payment of the increments set for quantitative and qualitative indicators. Thus, every kolkhoz chairman and sovkhoz director now has a direct interest in the development of private subsidiary plots of citizens. Superior agricultural bodies should impose just as strict responsibility for this as for the management of public production sectors.

Question We have already written that at present almost every sixth peasant farm in the republic does not have any livestock and every third, cows... Judging from readers' letters, the decrease in domestic animals is due mainly to the poor provision with fodder. Was this not affected by the fact that for a long time you did not pay proper attention to the utilization of hayfields and pastures, which

occupy more than 3 million hectares, or about 36 percent of all agricultural land, in the republic? You judged the level of farm management by the yield of grain crops, potatoes, flax and sugar beets, while grass, one can say, was in the background.

[Answer] In principle, the newspaper's readers are right. The insufficient provision of livestock with fodder is one of the main reasons for the decrease in the number of livestock on private plots of kolkhoz members, sovkhos workers and employees and residents of small settlements. However, we must keep the following circumstance in mind. Until recently proper attention has not been given to meadows and pastures not because they have been completely forgotten, but because it was necessary, first of all, to raise the productivity of arable land, to solve the grain problem and to increase the output of potatoes, sugar beets and other row and industrial crops. Now, when these problems have been solved in large measure, managers, specialists and all workers of kolkhozes and sovkhoses are called upon to embark on the utilization of hayfields in the right way. The productivity of the grass hectare is, indeed, extremely low--only 10 to 12 quintals of fodder units per hectare. However, scientific data and the experience of a number of farms (Kolkhoz imeni Uritskiy in Gomel'skiy Rayon, Kolkhoz imeni Kalinin in Nesvizhskiy Rayon, Svetlyy Put' Kolkhoz, Kolkhoz imeni Lenin in Molodechnenskiy Rayon and others) indicate that even without the use of irrigation under the republic's conditions it is possible to have 50 to 60 quintals of fodder units per hectare and with artificial sprinkling, up to 80-100 quintals.

The Belorussian SSR Ministry of Agriculture and its scientific research institutes worked out an overall object program for the development of fodder production for the 11th Five-Year Plan, which is to fundamentally change the attitude toward the cultivation of grass in crop rotation fields and meadows. Kolkhoz and sovkhos managers will be just as responsible for the realization of the measures outlined by the program as for the fulfillment of other basic indicators of economic activity.

The most important thing that must be done is to at least double the productivity of meadows. This will make it possible to meet 45 percent of the need of all the categories of farms in the republic for grass fodder at the expense of meadow land.

When working out the overall object program for the development of fodder production, we paid special attention to the allocation of mineral fertilizers for grass. Of the total amount of mineral fertilizers planned for fodder crops and land about 38 percent will be annually applied to hayfields and pastures.

Great changes are envisaged in the organization of grass seed growing. Emphasis is placed on an expansion of the areas of pulse crops. For example, the proportion of lucerne and clover in the group of perennial grass is to be raised from 25 to 75 percent and of lupin, peas and vetch in the areas sown with annual crops, from 33 to 64 percent.

I believe that the implementation of these and a number of other measures will make it possible to greatly improve fodder supply not only for public livestock, but also for livestock on private plots of kolkhoz members, sovkhos workers and citizens of other categories.

[Question] Apparently, the fodder problem should be solved not only through an increase in the yield of grass and all other agricultural crops, but also as a result of a rational and efficient utilization of every plot of land. For example, reader N. Voytenkov is disturbed by the fact that in a number of places land is recultivated slowly and considerable losses occur owing to an unsubstantiated alienation for various building projects.

[Answer] Land is the main national wealth. As Vladimir Il'ich Lenin stressed, it must be cherished as the apple of one's eye. The Belorussian SSR Ministry of Agriculture and its local bodies are engaged in large-scale work on uncovering unutilized land and drawing it into an intensive agricultural turnover. In 1978-1980 alone 5,300 hectares were added to public land. Farms allocate the plots that, owing to their negligible size and location, cannot be included in common tracts for individual use.

However, does this mean that we utilize every plot of land in a rational and efficient manner? Unfortunately, not. For example, on one kolkhoz  $\frac{1}{2}$  hectare is not utilized, on another kolkhoz,  $\frac{1}{2}$  hectare and on a still another... One looks and sees more than 1,000 unutilized hectares in the republic. This is a serious reproach not only against kolkhoz and sovkhos managers and specialists, but also local land agencies, which do not manifest proper strictness in this very important matter.

How much fodder could we have had from land destroyed by mines and covered with dumps formed in the process of mineral extraction and from plots that were under worked peat fields. Land is recultivated slowly, very slowly in the republic. The Belorussian SSR State Planning Committee should have its say here. It should more widely include land restoration in the work plan of construction organizations.

I would like to note that more than 242,000 hectares of agricultural land, including 101,000 hectares of arable land, have been withdrawn from agricultural use in the republic in the last 15 years. In most cases such a measure is dictated by an inevitable need. However, there are also cases of an unsubstantiated alienation of land. Of course, some agricultural bodies, which at times are led by those who forget about land economy, are also to blame for this.

[Question] The development of private plots involves not only the provision of livestock with fodder. For example, reader V. Meleshko writes that he has the opportunity of engaging in the breeding of broilers and hogs. But where can he get young stock? Similar questions are also raised in many other letters.

[Answer] We in the ministry also receive many similar letters. This is understandable. It is not so simple and not always profitable to engage in the reproduction of livestock and poultry on small private plots. Kolkhozes, sovkhoses, reproducer complexes and specialized poultry farms must come to the aid of the rural population. A great deal has already been done in this respect. For example, last year 389,000 hoglings were supposed to be sold to the population, but almost 100,000 more were sold. The assignment for the sale of chicks and ducklings was also overfulfilled.

Nevertheless, kolkhozes, sovkhoses, reproducer complexes and specialized farms are not yet able to fully provide the population with young hogs, poultry and large-horned cattle. In order to accelerate the solution of this problem, many farms, which, owing to their basic specialization, do not have hog breeding sections, temporarily adopted the following measure. They purchased 15 to 20 sows and sell the hoglings obtained from them to the local population. However, the reproduction of hoglings under such "diminutive" conditions is connected with great difficulties and, moreover, is not profitable. Therefore, by the end of the 11th Five-Year Plan we intend to have in every rayon one or two specialized farms for the production of hoglings for the sale to the population. This will make it possible to increase the annual sale of young stock to private farms to 1 million head.

An increase in the sale of young poultry to the population is also envisaged. This year 9.5 million chicks will be sold and the sale of day-old goslings will triple as compared with last year. For this purpose capacities have been expanded on the Gvardiya Sovkhoz in Borisovskiy Rayon and on the Smolevichi Broiler Farm.

It should be noted that the need for young hogs and poultry is of a pronounced seasonal nature. Everyone wants to buy young stock in the spring or at the beginning of the summer. Kolkhozes, sovkhoses, reproducer complexes and poultry farms should take this characteristic into consideration and most fully meet the population's need for young livestock and poultry.

Question An article entitled "Not With This Measure" was published in our newspaper. It discussed the interesting solution of the problem of development of private plots on the Znamya Kommunizma Kolkhoz in Checherskiy Rayon. When selling hoglings to the population, the kolkhoz concludes standard agreements. According to their terms, the farm sells hoglings at the live weight price of 1 ruble 50 kopecks, or 3 rubles (depending on the quality) to every kolkhoz member and allocates part of the concentrates and potatoes for raising them. In turn, the kolkhoz member commits himself to sell one of the boars to the kolkhoz. Both sides gain.

Answer Having studied the experience of this and a number of other farms, the Belorussian SSR Ministry of Agriculture developed special "Recommendations for Mutual Relations of Kolkhozes and Sovkhoses With the Population During the Production of Meat on a Cooperative Basis." They regulate contractual relations, the obligations of the parties and the procedure of purchase and sale of livestock and poultry, fodder supply and veterinary services. In particular, this document states that the kolkhoz (sovkhoz) sells not only young livestock and poultry for breeding and fattening to the citizen, but also concentrated, coarse and succulent fodder in amounts determined in accordance with the agreement between the parties. Fodder is sold at the cost of production, but not higher than state retail prices. The farm pays the citizen for the obtained increase in live weight at rates determined in the contract depending on the degree of fatness of animals and weight requirements.

Question Fedor Petrovich, the discussion of the problem of development of subsidiary plots in the newspaper revealed the following aspect. In many places there were difficulties with the cultivation of private plots. O. Morozov from Rossonskiy Rayon reports that only several horses have remained on their kolkhoz. A plow or harrow is nowhere to be found...



/Answer/ Of course, in connection with the increase in the mechanization of agricultural production the horse gave way to the machine. However, does this mean that rural areas do not need it at all? They need it for the performance of various auxiliary operations and for servicing animal husbandry sections and private plots of kolkhoz members and sovkhos workers. Is it really possible to enumerate all the operations that can be performed much more advantageously and cheaply by horses than by a tractor or motor vehicle? The fact that here and there horses have been overlooked and, as the saying goes, left to the mercy of fate reflects, first of all, the imprudence of kolkhoz and sovkhos managers. The Belorussian SSR Ministry of Agriculture is preparing a special decision on this matter, which draws attention to the incorrect attitude toward horse breeding in the republic. On 1 January 1980 on kolkhozes and sovkhos there were only 176,000 work horses, or 209,000 less than, for example, in 1965. This is the result of the fact that the reproduction of horses has been neglected--no one handles it in the right way. This cannot be tolerated and the Belorussian SSR Ministry of Agriculture has placed this matter under special control.

What can be said about the fact that some farms do not have horse equipment and gear? Both planning bodies and the enterprises manufacturing, for example, single bottom plows, harrows and girths are to blame for this. Many bases of the associations of the Belorussian SSR State Committee for Agricultural Equipment are overloaded, for example, with horse carriages, while kolkhozes and sovkhos are short of them. What is the matter? It turns out that rubber-tired carts, that is, with motor vehicle wheels, have been manufactured in the last few years. They cost about 300 rubles, or three times as much as ordinary carriages. Second, they are extremely impractical. A person goes to the forest in search of logs, runs into a stump and rips the inner tube of the tire. Try to take the wheel apart, vulcanize the inner tube and assemble everything back! Not every driver can do this. Therefore, bases are overloaded with horse carriages, while rural residents complain about their shortage. This shortcoming must be eliminated.

Kolkhozes and sovkhos need horse collars of various sizes, but, basically, they are made in one size. Rural residents also have many complaints about minor garden implements. It would seem that our colleagues from the associations of the Belorussian SSR State Committee for Agricultural Equipment, who handle the provision of farms with horse equipment and gear, and workers at the enterprises of the Belorussian SSR Ministry of Local Industry manufacturing all these articles should approach the needs of rural residents with greater responsibility.

/Question/ In connection with the sharp reduction in the number of horses on farms for the cultivation of private plots and the performance of other operations it is necessary to withdraw kolkhoz and sovkhos equipment. In most cases it is not used efficiently. However, it is not only a question of this. The authors of many letters also draw attention to the following. In order to obtain transport (usually, permission is given to take it before the job authorization or after the basic job), it is necessary to gain the machine operator's favor. Don't we demoralize personnel in this way? In your opinion, how can and should this urgent problem be solved?

/Answer/ Yes, we have something to think about here. Perhaps it is a case when, for example, a tractor operator drives the Belarus' into a garden, where, because of trees and structures, he has no place to turn and has a hard time plowing 15

to 20 hundredths of a hectare of land. Where farm managers do not manifest concern for the cultivation of private plots of kolkhoz members and sovkhos workers, the situation really becomes demoralizing for machine operating personnel. This is beneath criticism. This urgent problem must be solved without delay. How? There can be no one formula. In one case, as happened on the Neman Kolkhoz in Stolbtsovskiy Rayon, it was an inclusion of private plots in common crop rotation and their cultivation with public equipment and an imposition of a charge according to the cost of operations. In another case, the cultivation of private plots strictly according to job authorizations and in an order established by the kolkhoz board or sovkhos management. In still another case, an allocation of a sufficient number of horses for work in gardens. In brief, there are many variants of the solution of this problem.

Question Reader V. Tarasevich maintains that, where attention to the development of private farms is slackened, double damage is done. First, a significant part of the output is not obtained and, second, owing to difficulties with the provision of livestock with fodder, cultivation of private plots, procurement of fuel and so forth, in general, many rural residents leave villages and take up permanent residence in cities, which undermines the economy of farms, because, as it is, there is a shortage of manpower in rural areas.

Answer There is no denying that an incorrect attitude toward private plots of kolkhoz members, sovkhos workers and citizens of other categories results in a deficiency of tens and hundreds of thousands of tons of milk, meat, vegetables and fruits... There is a sharp reduction in the livestock population on subsidiary plots and a decrease in the production of plant products. For example, whereas in 1955 the republic's rural population had 1,726 million head of large-horned cattle, in 1965, 1,571 million and in 1975, 1,333 million, at the beginning of 1980 it had only 1,137 million head. In Vitebskaya Oblast a year ago 23 percent of the private plots had no domestic animals and every second or third rural family did not keep a cow.

I would say that to live in a rural area and not to manage a subsidiary plot is unwillingness to work and, to some extent, immorality. Both the decree of the CPSU Central Committee and the USSR Council of Ministers "On Additional Measures To Increase the Production of Agricultural Products on Private Subsidiary Plots of Citizens" and the decisions of the 26th party congress point to the maximum utilization of the possibilities of this important reserve of replenishment of food resources. No kolkhoz or sovkhos manager, no rural resident have a right to forget this.

One cannot but share V. Tarasevich's concern for the fact that the slackened attention to the development of private plots in a number of places has a negative effect on retaining personnel in rural areas. Unfortunately, in some of the republic's rayons the provision of agriculture with labor resources comprises only 50 percent. Of course, a set of measures is needed to stop the unjustifiably high labor turnover. At the same time, however, a fundamental change in the attitude toward the development of private plots of kolkhoz members, sovkhos workers and employees and rural residents of other categories must not be forgotten.



Question Fedor Petrovich, what else can you say about the problem under discussion?

Answer Of course, not one day, not two days and not even a year are needed to solve it. The success of this matter depends not only on the reorientation of agricultural personnel. A wide field of activity is opened here for procurement organizations and consumer cooperatives. A purposeful development of private subsidiary farms is impossible without supplying the rural population with various high-quality modern tools and mechanisms. I know that rural residents are very short of power saws, mechanized carts, root and tuber mincers and power mowers... Facilitating people's labor is the most important condition for their interest in the management of private subsidiary plots.

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CSO: 1824/179

## AGRO-ECONOMICS AND ORGANIZATION

### USE OF PRIVATE PLOTS PROMOTED IN KAZAKHSTAN

Alma Ata KAZAKHSTANSKAYA PRAVDA in Russian 11 Mar 81 p 3

[Article: "Useful State Work"]

[Text] In recent years, certain positive changes have taken place in the development of the private plots of kolkhoz members, manual and office workers and other citizens. The number of livestock possessed by the population has increased as has also the production of animal husbandry and crop husbandry products.

At the same time, by no means is full use being made in a number of oblasts and rayons of the opportunities available for increasing the production of meat, milk and other products on the private plots and not enough importance is being attached to the role they play in augmenting the food resources.

The Central Committee of the Communist Party of Kazakhstan and the Council of Ministers of the Kazakh SSR, in carrying out the decree of the CC CPSU and the USSR Council of Ministers entitled "Additional Measures for Increasing the Production of Agricultural Products on the Private Plots of Citizens," have obligated the party, soviet and economic organs of the republic to eliminate existing shortcomings in the organization and management of the private plots of citizens.

The attention of the party, soviet and economic organs, the leaders of farms, Kazpotrebsoyuz [Kazakh Union of Consumers' Societies] and the local organizations of consumer cooperation has been focused on the fact that, simultaneously with carrying out measures aimed at increasing the production of animal husbandry products on the private plots of citizens, in accordance with agreements concluded with kolkhozes, sovkhoses and other agricultural enterprises, the procurement activities of consumer cooperation must be expanded and commission trade at the kolkhoz markets in meat and other agricultural products developed.

The sovkhoses, kolkhozes and other agricultural enterprises must ensure the raising of young livestock and poultry and their sale to the population in quantities which will satisfy the requirements of the private plots of citizens.

The oblast executive committees, the ministries of agriculture and procurements for the Kazakh SSR, Kazpotrebsoyuz and the republic's Voluntary Society of Amateur Rabbit Breeders must implement additional measures aimed at further developing the raising of rabbits on the private plots. Kazpotrebsoyuz must organize the procurements of rabbits and rabbit pelts as a rule directly in the areas where they

are produced. The soviet and economic organs and the leaders of kolkhozes, sovkhoses and other agricultural enterprises are tasked with carrying out additional measures aimed at ensuring that the livestock and poultry being maintained on the private plots of citizens are supplied with feed. Those kolkhoz members, manual and office workers and other citizens who conscientiously participate in public production, and also pensioners, all of whom maintain long-horned cattle, sheep and goats on their private plots, should be provided with tracts of land to be used for hay-making and grazing purposes, for as long a period of time as possible.

Kazpotrehsyuz and the oblast executive committees must improve the work of the consumer cooperation organizations with regard to the procurements of animal husbandry and farming products from the private plots of citizens, on the basis of mutually agreed upon prices, carry out more active work in concluding agreements with citizens for the procurement of agricultural products and expand considerably cooperative trade in the products procured.

The party, soviet and agricultural organs and the professional trade union and komsomol organizations must systematically summarize the positive experience accumulated in the management of the private plots by the kolkhoz members, manual and office workers and other citizens. Extensive use should be made of the practice of issuing various forms of incentives for the best private plots of citizens and appropriate exhibits, inspections, competitions and fairs should be held. The recommendation has been made to have the State Committee for Television and Radio Broadcasting of the Kazakh SSR and the editorial boards of newspapers and journals publicize those matters concerned with the management of the private plots and also collective horticulture and gardening.

The Central Committee of the Communist Party of Kazakhstan and the Council of Ministers of the Kazakh SSR have indicated that the party, soviet, professional trade union and komsomol organs must carry out organizational and explanatory work among the population and acquaint the kolkhoz members, manual and office workers and other citizens with the measures that are available for further increasing the production of agricultural products on the private plots. A social climate must be created in all areas such that the kolkhoz members, manual and office workers and other citizens will sense that they are performing useful state work by raising livestock and poultry and carrying out horticultural and gardening work on their private plots.

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## TILLING AND CROPPING TECHNOLOGY

### REQUIREMENT FOR IMPROVEMENTS IN BELORUSSIAN AGROCHEMICAL SERVICE STRESSED

Moscow KHIMIYA V SEL'SKOM KHOZYAYSTVE in Russian No 2, Feb 81 pp 10-14

[Article by G.G. Kovalenko, deputy chairman of Council of Ministers for Belorussian SSR: "Specialization and Concentration of Agrochemical Services and Effectiveness of Fertilizers at Kolkhozes and Sovkhozes in Belorussia"]

[Text] The decisions handed down during the October Plenum of the CC CPSU and the session of the USSR Supreme Soviet provided us with a program for great accomplishments in behalf of our Soviet people. These decisions summarized the goals already achieved and defined the new ones. The party, soviet and economic organs and all municipal and rural workers have been assigned very important tasks associated with economic and socio-cultural construction, tasks which are in keeping with this modern stage in the creation of communism.

Improvements in the welfare of the people represent one of the most important aspects of the practical work being carried out in the economic sphere. Among the problems upon which the standard of living of our Soviet people depends, first place is occupied by the need for implementing improvements in the supply of food goods. This was clearly and convincingly stated during the October (1980) Plenum of the CC CPSU by the General Secretary of the CC CPSU and Chairman of the Presidium of the USSR Supreme Soviet, Comrade Leonid Il'ich Brezhnev.

As a result of the consistent implementation of our party's Leninist agrarian policies, our agriculture is being transformed into a more highly developed sector of the socialist economy. The intensification of agricultural production, the increase in agricultural specialization and concentration and the strengthening of the logistical base have exerted a positive effect on growth in the production volumes for crop husbandry and animal husbandry products. Despite the tremendous difficulties caused by complicated weather conditions, especially during the past few years, the republic's agriculture has achieved considerable progress in its development in recent years. Compared to the previous five-year plan, the average annual gross output volume at kolkhozes and sovkhozes increased by 16.6 percent, the average annual production of grain -- by 12, meat -- by 22, milk -- by 19 and eggs -- by 71 percent.

A program aimed at radically transforming the land is being implemented in an active manner. The liming of acid soils, the reclamation of swampy and water-logged lands and the extensive use of chemical processes in farming have created favorable

prerequisites for obtaining high and stable yields for all of the agricultural crops. Compared to the 1961-1965 period when the average cropping power for grain crops was 8.3 quintals per hectare, by the end of the 1976-1979 period it had increased to 22.6 quintals. In the case of potatoes, the figures were 82 and 165 quintals per hectare respectively.

These indicators were achieved as a result of the selfless labor performed by kolkhoz members, sovkhos workers and all workers within the agroindustrial complex. However, the results achieved in the development of kolkhoz-sovkhos production are not in keeping with the modern requirements, a point which was emphasized during the recent Plenum of the CC CPSU and the session of the USSR Supreme Soviet.

After establishing the task of sharply intensifying the rates of production for all types of agricultural output, the party also defined the methods to be employed for solving this task. Among these methods, priority importance is attached to those problems concerned with the extensive introduction of mechanized operations, the use of chemical processes and land reclamation operations. Improvements in the agrochemical services for agricultural production are becoming a most important element in the complex of measures aimed at further developing farming.

It was during the 1960's that the Belorussian service for the use of chemical processes in agriculture began to form. Oblast agrochemical laboratories were created within the Ministry of Agriculture system and subsequently -- rayon stations for the use of chemical processes. Later the agrochemical laboratories were converted into oblast stations for the use of chemical processes.

At the same time, specialized departments were formed for the mechanization of operations and for the chemical protection of plants. Within the Belsel'khoz-tehnika system, 111 specialized departments and 97 bases for the use of chemical processes having rail-served storehouses were created.

In 1965 the overall volume of mechanized operations amounted to 18.1 million rubles and in 1978 it reached 90 million rubles. This underscores the effectiveness of the work carried out. The volume of peat extracted and organic fertilizer transported increased twofold and the liming of acid soils -- by a factor of almost 3.5.

During this period, three rounds of agrochemical inspections of the agricultural lands were carried out and 22 million soil analyses and 247,000 analyses of organic, mineral and lime fertilizers were completed. Approximately 4,000 field tests were carried out on the effectiveness of use of fertilizers. A large volume of work was carried out in connection with studying the fertilizer requirements, their distribution by rayons and farms, the composition of planning-technological documentation, the application of fertilizers and liming of acid soils, control over the accounting for, storage and use of chemical agents, determining the planned and actual return from fertilizers under production conditions and control over the contamination of soils.

However, despite all of the above, the level of agrochemical services is still not keeping pace with the increasing requirements of agriculture. This situation is caused to a considerable degree by the departmental separation of individual subunits.



The distribution of the mineral fertilizer storehouses and their capacities are determined in the absence of adequate justification. Quite often the storehouse facilities are used for storing other logistical materials, with the mineral fertilizers being unloaded at exposed sites; other derelictions are also being observed.

During the July (1978) Plenum of the CC CPSU, the status of affairs with regard to the use of chemical agents was analyzed thoroughly. The party defined specific measures for further improving the structure of the entire agrochemical service. In developing the decisions handed down during the Plenum of the CC CPSU and the USSR Council of Ministers, the well known decree entitled "The Creation of a Single Specialized Agrochemical Service Throughout the Country" was adopted. The principal trends and additional methods for improving agrochemical services for the kolkhozes and sovkhoses are outlined clearly in this decree.

In late 1979, all those subunits of Goskomsel'khoztekhnika for the Belorussian SSR and the Ministry of Agriculture for the Belorussian SSR which had performed work in connection with the use of chemical processes in agriculture were concentrated in the Belsel'khozkhimiya Production-Scientific Association of the Ministry of Agriculture for the Belorussian SSR. Its structure includes a republic agrochemical laboratory, a station for the biological method of plant protection and also a laboratory for forecasting and diagnosing agricultural crop pests and diseases. The association's council was created. In addition to representatives of the association, this council includes the leaders of scientific-research institutes: soil science and agrochemistry, plant protection, mechanization and electrification of agriculture in the nonchernozem zone of the USSR and the Belgiprozem and Belgiprosel'khoz planning institutes.

Oblast and rayon production associations of Sel'khozkhimiya were created in each oblast and rayon and their structures included oblast and rayon stations for the use of chemical processes and plant protection stations.

The republic association and its subordinate subunits constituted a single system of agrochemical services for agriculture. Points for the use of chemical processes are being created directly at the kolkhozes and sovkhoses, with the farms themselves having a concentration of logistical resources; they are being provided with planning-technological documentation on the use of the chemical resources.

A comparatively poor logistical base has been created in the associations. They have approximately 9,000 physical tractors and roughly the same number of motor vehicles and many units of towing equipment; 234 mechanized detachments are carrying out all of the soil liming work, 80 percent of the peat extraction work for fertilizer purposes, approximately 50 percent of the soil improvement work, 68 percent of the chemical treatment of plants and 10-12 percent of the work of applying mineral and organic fertilizers. Transport vehicles of Sel'khozkhimiya are being used for transporting all of the mineral and lime fertilizers, the chemical agents for protecting plants and 50 percent of the peat used for fertilizer, from the areas where it is extracted.

Notwithstanding the extremely unfavorable weather conditions experienced during 1980, the plans for agrochemical services were carried out for the principal types



of work. The overall volume of work and services carried out amounted to approximately 113 million rubles, or 103 percent of the plan, including 104 percent for mechanized production operations, 102 percent for motor transport operations, 105 percent for repair work and for goods turnover during 9 months -- 193.3 million rubles or 103 percent of the plan.

Work has been carried out in connection with preparing areas for regrassing, liming acid soils, preparing composts, applying mineral fertilizers to the soil and also liquid ammonia and providing chemical protection for plants.

Many rayon associations have already proven themselves to be fine assistants to the grain growers in their campaign to raise the productivity of the soil. The Nesvizh, Stolbtay and Minsk associations are cited as examples. Each one of them is carrying out work at the kolkhozes and sovkhoses valued at more than 1.5 million rubles and supplying 2.5 million rubles worth of materials employed in the use of chemical processes.

The oblast stations for the use of chemical processes are scientific-production planning-technological elements. They have at their disposal modern and highly productive equipment for carrying out mass agrochemical analyses. New sets of instruments have been developed which operate on the continuous-flow line principle and the achievements of science and leading operational practice are being introduced into operations. The development and installation of an experimental complex of equipment involving the use of an electronic computer have commenced at the Minskaya Oblast station.

The equipping of the stations with modern equipment is making it possible to carry out annually more than 1 million soil analyses, 30,000 plant analyses and more than 15,000 analyses of fertilizers. They accept complete responsibility for the scientifically sound use of mineral and organic fertilizers, chemical and biological agents for protecting plants, chemical soil ameliorants, feed additives, growth stimulants and other means for the use of chemical processes at all kolkhozes, sovkhoses and other agricultural enterprises.

In view of the exceptional importance attached to the tasks confronting the new service, we intend to strengthen its logistical base in every possible way and supply it with modern and highly productive equipment. This will make it possible to intensify constantly the volumes of work and to improve the quality of the agrochemical services being provided for the kolkhozes and sovkhoses.

During the Eleventh Five-Year Plan, the plans call for 330 million rubles worth of capital investments to be allocated for the construction of rail-served storehouses, production bases, housing and remote points for the use of chemical processes. Construction work will be completed on rail-served storehouses for handling 55,000 tons, storehouses for storing 6,000 tons of pesticides and 351,000 tons of pulverized ameliorants, storehouses for the storage of 161,000 tons of liquid fertilizers and remote storehouses at kolkhozes and sovkhoses for handling 450,000 tons.

The plans call for 170 million rubles to be used for equipping the machine-tractor pool, for acquiring machines for loading and unloading operations and for applying

the agents used in chemical processes and other technical resources. This will make it possible in the future to increase the work volumes with regard to the use of chemical processes in agriculture.

Great hopes are being placed upon the use of self-propelled machines for applying the mineral fertilizers. Models of such machines have been designed and produced in our republic. According to a conclusion drawn at the Western Machine-Testing Station, the MVU-30 distributor, in terms of productivity, is 8-10 times better than the serially produced LOMG-4 unit and one and a half times better than an aircraft. The presence of low pressure wide-section ribbed tires ensures good handling capability under very difficult field conditions, including during the early spring period. The machine has interchangeable equipment and thus it can be used for applying liquid fertilizers and also for the chemical protection of plants.

Computations have shown that 10-15 such machines and 20-30 automatic reloaders are making it possible to apply the principal amount of mineral fertilizers on all farms in our middle region. Beyond any doubt, the equipping of agriculture with machines of this type signifies a radical change in the mechanization of fertilizer application operations and thus it requires the fixed attention of the directive organs of the country.

The production of food products is viewed as a most important socio-state task. In the CC CPSU plan for the 25th party congress entitled "Basic Directions for the Economic and Social Development of the USSR During the 1981-1985 Period and for the Period Up To 1990," the plans call for the following: "To increase the average annual gross output volume of agriculture by 10-12 percent. To ensure an average annual production of grain in the amount of 7.5-8.1 million tons, potatoes -- 12.7-13.5 million tons, meat (in dressed weight) -- 950,000 to 1 million tons and milk -- 6.2-6.7 million tons. To drain water-logged and swampy land on an area of 460,000-520,000 hectares.

In order to achieve such indicators, it will be necessary to place in operation all of the factors and methods of intensification, including the use of chemical processes in agricultural production.

A principal and decisive reserve for increasing the production of farming products is that of raising the fertility of the soil. The task consists of creating optimum soil conditions for obtaining high and stable yields for all agricultural crops. This includes first of all a favorable water-air regime, an optimum reaction to the soil substrate, high supplies of humus and accessible nutrients, the prevention of soil erosion, enlargement of fields, removal of boulders and shrubs from the fields and the carrying out of other soil improvement operations.

The results of scientific studies have shown that the hydraulic engineering reclamation of excessively damp soils, combined with the extensive use of chemical processes and the utilization of other reserves for raising yields, make it possible to raise the productivity of the land to 60 quintals of feed units per hectare. The plans for the current five-year plan call for the construction of new drainage systems on an area of 350,000 hectares and the modernization of existing systems on an area of 145,000 hectares. The annual regrassing of agricultural land is to be carried out on an area of 127,000 hectares.

In view of our conditions, exceptional importance is attached to the liming of acid soils. Within the republic there are 5 million hectares of such soil, or 55 percent of the agricultural land. Attaching exceptionally great importance to this measure, the kolkhoses and sovkhoses are annually increasing the volumes of their liming operations. Compared to 1954 when lime was applied to only 17,000 hectares, in 1960 -- 280,000, in 1970 -- 814,000 and in 1979 -- 1.3 million hectares.

Accordingly, an increase has taken place in the quantity of lime fertilizers applied. Over the past 15 years, it increased by a factor of almost 22. We did not have ample quantities of our own lime fertilizers and thus we had to import them from other republics. For example, chalk waste materials from quarries in the RSFSR and the Ukraine, shell rock from Moldavia and shale ash from Estonia. We are grateful to these republics for the assistance they furnished.

The Central Committee of the Communist Party and the Government of Belorussia adopted a decision calling for the creation of the republic's own industry for the production of lime fertilizers, based upon local deposits of dolomite limestone. The plans for the construction of the plant capabilities were carried out successfully. At the present time, the Vitebsk Dolomit Production Association is supplying the republic's agriculture with approximately 5 million tons of standard dolomitic meal annually and thus almost completely meeting the requirement for this type of fertilizer.

The plans call for the construction of storehouses for the acceptance and storage of 351,000 tons of pulverized lime fertilizers. By the end of the next five-year plan, all of the lime fertilizers will be stored in storehouse facilities, thus making it possible to convert over completely to applying dolomitic meal using the flow-line industrial technology: rail-served storehouse - specialized ARUP-8 motor vehicle - RUP-8 tractor spreader. Approximately 500,000 hectares are being limed annually using this technology.

A great amount of importance is being attached to those problems concerned with the production and use of organic fertilizers. The volume of their annual procurements has reached 70 million tons, or 13 tons per hectare of arable land and their use has almost doubled over the past 10 years.

Peat is an important component of the organic fertilizers. Each year, 30-35 million tons of it are procured (with Sel'khozkhimiya producing 25-26 million tons) on an industrial basis using the shredding method; it is used for the litter of livestock and in the direct preparation of compost. Within the republic, the functions associated with organizing the procurement of peat are strictly limited: the construction of peat sites is carried out by land reclamation organizations and the procurements -- by Sel'khozkhimiya associations and partially by enterprises of the Ministry of the Fuel Industry for the Belorussian SSR and control over quality -- by Gosstorfond (Administration of the State Peat Fund) of Gosplan for the Belorussian SSR. We consider one method for solving the problem of increasing the production of farmyard manure to be that of maintaining livestock, on an extensive scale, on deep and periodically changed litter. Such a technology has already been introduced into operations at the Osnezhitskiy Kolkhoz in Pinskiy Rayon, at the Pobeda Kolkhoz in Baranovichskiy Rayon and on many other farms throughout the republic. It has fully proven its worth.



However, we are clearly aware that the supplies of peat are limited and that the procurements of peat for fertilizer purposes will gradually decrease in the future. In the interest of preserving the overall volume of use of organic fertilizers, new sources for supplementing them are being sought. Lake sapropels could serve as one such source in the future.

It should be emphasized that although the average humus content in soils throughout the republic increased by 0.16 percent during the 1965-1980 period and reached 1.91 percent, nevertheless existing practice in the use of organic fertilizers still lags behind the modern requirements for intensive farming. Agricultural concentration and specialization, especially in animal husbandry, require different approaches for solving the problems concerned with increasing the productive strength of the land, preproducing its fertility and especially for the principal indicator -- the humus content.

The construction of large animal husbandry complexes on a non-litter livestock maintenance basis and the absence of the technologies required for the utilization of runoff have created a number of substantial difficulties in the storage and use of organic fertilizers. In addition, a shortage of specialized machines and mechanisms is causing considerable losses in farmyard manure and also contamination of the environment. This important problem is beset by objective difficulties. The scientists, engineers, designers and agronomists must express their opinions. However, their opinions on this matter often differ. The need is at hand for developing an efficient system of manure removal, one which promotes a constant increase in the production and complete utilization of organic fertilizers.

Animal husbandry is the leading branch of agriculture in Belorussia. It is already furnishing approximately 50 percent of the overall volume of marketable products. Based upon this fact, the creation of a strong feed base is becoming one of the principal tasks of agricultural production. The amounts of fertilizer being applied to the feed lands are constantly increasing. Whereas during the 1960's they were used very little on haying and pasture lands and during the Ninth Five-Year Plan approximately only 2% percent of these lands were fertilized, during the 1976-1979 period fertilizers were applied to almost one half of the natural feed land areas. Whereas in the beginning an average of 28 kilograms of nutrients was applied per hectare of meadow, in recent years -- 59 kilograms. Beyond any doubt, we are still extremely dissatisfied with the amount and ratio of nutrients being applied to the feed lands. The nitrogen deficit on improved haying lands and cultivated pastures still amounts to 22 kilograms and phosphorus -- 7 kilograms. More than 65 percent of a perennial grass yield is formed on the basis of soil reserves. A negative balance results not only in low yields but also in low quality feed, especially in terms of digestible protein and phosphorus content. In the future, this situation will require that greater attention be given to those problems concerned with improving the fertility of the feed lands.

The greater use of chemical processes, the increase in the norm for applying organic and mineral fertilizers and the intensive liming of acid soils have brought about a substantial change in the agrochemical properties of soils and an increase in their fertility. Simultaneously with improving the soil fertility, introducing intensive varieties of agricultural crops into production operations and raising the overall culture of farming, the effectiveness of the fertilizers was raised substantially.

Compared to the 1961-1961' period when 1 kilogram of nutrients applied with mineral fertilizers returned slightly more than 3 kilograms of products, expressed in feed units, in recent years -- 5.9 kilograms. The return from 1 kilogram of active mineral fertilizer agent in terms of grain increased from 3.9 to 5 kilograms. An increase took place in the return realized from each ton of organic fertilizer -- from 19.5 to 24.5 kilograms of feed units.

On the average for the 1976-1979 period, the return from 1 kilogram of active mineral fertilizer agent amounted to more than 6 kilograms of grain for 10 rayons and from 5.4 to 6.0 kilograms of grain for 31 rayons.

The level of return from fertilizers is viewed as a most important indicator of scientific-production activity in farming. The determination of the amount of return from fertilizers, for each kolkhoz, sovkhos, rayon and oblast, has become a firm part of operational practice within the republic. The conditions for a competition have been approved. The winners in the socialist competition for achieving the highest indicators in the use of mineral and organic fertilizers, among the oblasts, rayons and farms, are awarded challenge red banners of the Central Committee of the Communist Party of Belorussia, the Council of Ministers for the Belorussian SSR, Belsovprof and the Central Committee of the LKSMB [Lenin Young Communist League of Belorussia], together with the issuing of monetary prizes.

Last year, 20 farms achieved a return of 9-9.5 kilograms of grain for each kilogram of active mineral fertilizer agent.

The highest results were achieved by the Progress Kolkhoz in Grodnenskiy Rayon -- 10.4 kilograms of feed units and 9.5 kilograms of grain per kilogram of active mineral fertilizer agent; the Zavety Lenina Kolkhoz in Maloritskiy Rayon, where 9.5 kilograms of feed units and 9.1 kilograms of grain were obtained per kilogram of active mineral fertilizer agent.

The overwhelming majority of our republic farms have learned how to employ in a rational manner the chemical resources allocated to them by the state and thus they are achieving good results. Therefore it was especially distressing to learn that the plans call for a reduction in the amount of mineral fertilizer to be allocated to the republic during 1981, despite the fact that the allocations are being increased for the country as a whole. This imposes special obligations on all agricultural personnel with regard to ensuring the proper use of the mineral fertilizers. Considerable reserves are available for accomplishing this.

However, in 1976, a year marked by favorable weather conditions, the return from the use of fertilizers at a considerable number of farms was lower than the amount planned. One reason for this was the losses tolerated in a number of areas, the result of numerous transshipments, overloading and also incorrect storage. Quite often a shortfall in crop husbandry products and a low return from fertilizers are caused by failure to observe the scientifically sound norms and ratios for nutrients, as called for in the plans for their utilization and also by violations of the agrotechnical requirements for the cultivation of agricultural crops: sowing of low quality seed, failure to adhere to the optimum sowing periods, weediness of fields, poor tilling of soils and so forth.

A maximum return is realized from fertilizers when an efficient technology is employed for applying it; uniform distribution of the mineral fertilizer over an area, optimum placement depth and so forth. The centrifugal spreaders being used at the present time do not ensure uniform mineral fertilizer applications and this is creating great differences in the agrochemical properties of the soil and yields, it is causing the plants to ripen at different times and, in the final analysis, it results in crop losses and in reduced fertilizer effectiveness. The scientists must furnish us with substantial assistance if we are to eliminate these negative phenomena. Here we are speaking mainly about the creation of more improved machines and technologies for employing chemical resources and the development and introduction of measures which will raise the fertility of soils, ensure stable productivity for the land and raise the value of the arable land and the effectiveness of the fertilizers.

Chemical services in behalf of animal husbandry must be introduced into operations on the farms in a considerably more active manner. In particular, an urgent requirement exists for employing chemical resources more extensively in order to improve the preservation of feed and raise its quality. Towards this end, use will be made this year of 170,000 tons of mineral feed additives, 1,900 tons of preservatives, 32,500 tons of carbamide and 20,000 tons of liquid ammonia. The deliveries of mineral feed additives constitute 50 percent of the requirements and preservatives -- only 22 percent. It bears mentioning that in the use of preservatives, especially liquid ones, there are still many unresolved problems associated both with their storage and the technology employed for their use.

A network of rayon laboratories has been created in the republic for establishing systematic control over the quality of the feed. Last year, approximately 48,000 feed samples underwent complete zootechnical analysis.

The studies were carried out as follows: hay -- 63, haylage -- 33, silage -- 34 and grass meal 58 percent of the amount procured. In addition, 66 percent of the silage and haylage bulk was analyzed for moisture content and carotene content.

During the next few years, with the rayon laboratories being supplied more completely with highly productive equipment and instruments, it will become possible to study the quality of all feed procured and to utilize the results of analyses when preparing the feed rations for animals. This represents one of the most important reserves for increasing the production of animal husbandry products.

Certain achievements have already been realized throughout the republic in the training of personnel for creating the logistical base for the use of chemical processes, but the stage already completed represents only the beginning of a great amount of work to be carried out in connection with the further development and intensification of agrochemical services.

The holding of a seminar-conference in our republic on the tasks associated with raising the effectiveness of fertilizer applications, which convened for the very first time following the historic decisions handed down during the July (1978) Plenum of the CC CPSU and the implementation of the decree of the CC CPSU and the country's government concerning the creation of a single agrochemical service, imposes many obligations upon us.



We are grateful to the CC CPSU, the USSR Ministry of Agriculture and Soyuzsel'khozkhimiya for having organized this seminar for us in Belorussia and also to our guests -- those who participated in the seminar -- for their recommendations and comments on further improving the agrochemical service. All of this will undoubtedly be of great assistance in solving the tasks assigned to us by the October Plenum of the CC CPSU and the 25th Plenum of the Central Committee of the Communist Party of Belorussia and it will promote a further expansion of the competition for agricultural workers, in honor of the 26th CPSU Congress.

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## TILLING AND CROPPING TECHNOLOGY

### ADVANTAGES OF INDUSTRIAL TECHNOLOGY FOR SUNFLOWER CULTIVATION STRESSED

Moscow SEL'SKAYA ZHIZN' in Russian 17 Mar 81 p 2

[Article by D. Vasil'yev, deputy director of All-Union Scientific Research Institute of Oil-Producing Crops and Doctor of Agricultural Sciences and A. Lukashev, head of the Institute's Department of Farming and candidate of agricultural sciences, Krasnodar: "Potential of an Oil-Producing Crop"]

[Text] Sunflowers play an important role in the country's food balance and feed resources. In the Kuban', for example, it long ago became one of the principal crops in the field crop rotation plans. This crop furnishes the farms with up to 25 percent of their crop husbandry profits. Such high profits are the result of the increasing expertise of the local farmers and of the improvements realized in the sunflower cultivation technology, which reflects many scientific achievements as well as leading experience.

Thrifty concern for this valuable crop serves to ensure that high and stable yields will be obtained. Despite the fact that the years of the Tenth Five-Year Plan were marked by unfavorable weather conditions, nevertheless the Kuban' farmers succeeded in achieving an average yield of up to 19.5 quintals of sunflowers from an area of almost one third of a million hectares. This was the highest productivity for sunflowers in our country.

In those areas where a creative approach is employed in carrying out the work and new reserves are being placed in operation, the cropping power for the oil-producing seed exceeded 20 quintals and at kolkhozes and sovkhoses in Ust'-Labinskiy, Dinskiy, Leningradskiy and Timashevskiy rayons, it reached 24-26 quintals per hectare. Even more generous yields were obtained by the workers at the kolkhozes Kuban', imeni Krupskaya, imeni Zhdanov and Rossiya in Ust'-Labinskiy Rayon, Pobeda in Dinskiy Rayon, Rossiya in Krasnodarskiy Rayon and imeni Gor'kiy in Leningradskiy Rayon, where the yield of oil-producing seed amounted to 27-29 quintals per hectare.

The industrial technology has become a most important factor for raising the return from each hectare of planting of this oil-producing crop. It proved its worth on fields in the Kuban' several years ago. Many kolkhozes and sovkhoses, in view of the shortage in herbicides, are employing it in a creative manner as the center of gravity in the destruction of weeds shifts to the extensive use of mechanized means. Meanwhile, it should be emphasized that we are speaking here of farms which have a high culture of farming, where as a result of the perennial use of a complex of

agrotechnical measures, considerable success has been achieved in clearing the fields of the harmful weeds.

The following facts convincingly testify to the effectiveness of the industrial technology. During the especially difficult year of 1980, the average cropping power for sunflowers throughout the kray was 19 quintals per hectare and on those areas where the industrial technology was employed -- 23 quintals. Many collectives have achieved even higher yields from the use of this new sunflower cultivation technology.

The most important elements of the industrial technology -- an agronomically correct placement of sunflowers in a crop rotation plan, with at least 8-10 years elapsing before it returns to its former place. It includes an integrated system for destroying weeds, the rational use of fertilizers and the programmed sowing of first class seed from the best regionalized varieties. It is also a complex of methods for the mechanized tending of crops and the protection of plants, for their pre-harvest desiccation and for the harvesting of the crop in a flow line with the thrashing, cleaning and drying of the seed and the shipping of the seed to the receiving points.

As is well known, weeds inflict great damage upon sunflower plants. They bring about a sharp decline in the cropping power and a deterioration in the sowing and marketable qualities of the seed. When plantings are contaminated by weeds, a proper yield cannot be expected from a variety, nor will proper use be made of the soil moisture or applied fertilizers. Nor can one expect the weeds to be suppressed by one or several individual or very efficient methods. Weeds can be cleared from a field in a reliable manner only through the use of a definite system and one which includes agronomical, mechanical and chemical measures and agents.

In particular, this system calls for the destruction of weeds in grain crop plantings which precede sunflowers, using herbicides of the 2.4-D group or a mixture of them with liquid nitrogen fertilizer -- and also the use of improved autumn plowed land and the treatment of soil layers to various depths using the 2.4-D preparation during the summer and autumn period. There are also some mandatory methods: destruction of early weed seedlings and sprouts by means of pre-sowing cultivation, applications of the highly effective treflan, nitiran and others to well leveled off autumn plowed land. In the absence of herbicides, it will be necessary to carry out pre-seedling and post-seedling harrowing and inter-row cultivations using weeders and pulverizing units. The experience of Kuban' kolkhozes and sovkhoses has shown that the use of this system is making it possible to destroy weeds almost completely in sunflower plantings and to raise the seed yield per hectare by 3-5 quintals.

On the basis of studies carried out at our institute over a period of many years, a system has been included in the industrial technology for applying mineral fertilizers annually to sunflowers at the rate of 40-60 kilograms of nitrogen and 60 kilograms of phosphorus per hectare. In addition to the traditional method for applying them to autumn plowed land, it is recommended that local-strip applications of the principal fertilizer be carried out simultaneously with the sowing. In such instances, the mineral fertilizers are applied in one or two strips at a distance of 6-10 centimeters along one or both sides of a seed row and to a depth of 10-12

centimeters. As a result, the effectiveness of the fertilizers is raised considerably and the suppression of young plants, caused by a high local concentration of salts in the soil solution, is eliminated.

Programmed sowing constitutes a very important element of the new technology. Exactly what is this? First of all, it consists of an optimum sowing period for a given amount of seed, for a definite depth and for uniform placement of the seed in a drill row. In this manner the required density for a stand of plants is achieved, a density which conforms to the natural conditions of the zone and the moisture supplies in the soil.

Excessively early sowings are no more justified than late sowings. When selecting the optimum sowing period, one indispensable condition must be that of obtaining healthy sunflower seedlings on a clean field and during the shortest period of time. Towards this end, the sowing is carried out when the soil at the seed placement depth has warmed to a temperature of 10-12 degrees. This period coincides with the mass appearance of early weed seedlings, which are destroyed by pre-sowing cultivation.

Special emphasis should be placed upon the importance of a uniform depth of seed placement. During experiments carried out at our institute over a period of 3 years, with the seed being sown at strictly the same depth (4.6 and 8 centimeters), the cropping power of the sunflowers was 34 quintals per hectare. In the case of non-uniform placement at a depth of from 4 to 12 centimeters, which often occurs in actual practice, the yields obtained during the same experiments were less by 3.5 quintals. Such a difference in cropping power is natural: those plants which, as a result of a deeper seed placement, appear later are suppressed by well rooted plants which germinated early and the result is small and low productivity heads. In the case of non-uniform seed placement depth, a difference in time of just 2 days in the appearance of the seedlings tends to lower the productivity of the plants considerably. This is why those individuals are wrong who, upon glancing at such tracts, state "The seedlings are sparse, but they will improve." Actually, after 5-7 days have elapsed, the density of the plant stand may appear to be normal and yet a reduction in yield is more or less inevitable. The seed placement depth for the sunflowers must be established by the farm agronomists. Depending upon the local conditions, it fluctuates from 5 to 8 centimeters and the deviation from the prescribed depth must not exceed 1 centimeter. In order to achieve this, pre-sowing cultivation is carried out on the leading farms to a uniform depth, the surface of the field is leveled off and the sowing machines accurately adjusted.

A strictly optimum plant stand density must be achieved in order to obtain a high sunflower yield. Depending upon the moisture conditions, such an optimum density ranges from 30,000 to 50,000 plants per hectare. Importance is also attached to achieving uniform densities, with the same intervals between plants in a row. The results of experiments carried out at our institute are rather instructive in this regard. The experiments were conducted between 1978 and 1980. For the same plant stand density, the sunflower cropping power was higher by 2.7 quintals per hectare in those areas where the spacing of the plants was close to ideal.

Use of the industrial technology necessarily requires that the thrashing be carried out as rapidly as possible and without losses and that the cleaning, drying and

delivery of high quality seed be conducted in a single flow-line. This is an extremely tense period and especially in the Kuban' region. It coincides with the harvesting of many crops, the procurement of feed and the preparation of the soil for the winter crops. As at no other time, the problem of transport is more critical during this period. In the interest of avoiding undesirable consequences, many farms have begun following, on a more frequent basis in recent years, the recommendations handed down by the institute on the cultivation of two rather than just one sunflower variety (early-ripening and mid-season ripening varieties) and they are employing chemical pre-harvest desiccation of the crops using magnesium chlorate and reglon.

Strict fulfillment of all elements of the industrial technology provides a strong reserve for the sunflower field. The importance of this is well understood by the Kuban' grain growers. In collaboration with science, they are searching for the means for overcoming their difficulties. But all is not dependent upon them alone. For example, there is the problem of deliveries of new equipment, herbicides and fertilizers. The supplies of Treflan and other herbicides required for the introduction on an extensive scale of the industrial technology for sunflower production are inadequate.

The new technology represents a true and reliable reserve for further increasing the production of sunflowers and it must be placed in operation on an extensive scale.

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